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whereas the *Ascidia* have no distinct muscles which can be compared to those intersecting the visceral cavities of the *Polyzoa* and *Brachiopoda*.

Mr E. S. Morse has lately shown (September number of the *NATURALIST*) that the closest resemblance exists between the young of *Terebratula* and the adult *Polyzoön*, so close that there would be no hesitation in placing them in the same class, if the characteristics of the former were permanent.

In fact we cannot coincide with those who consider that the principles of the Cuvierian classification are endangered by Mr. Huxley's book. While no champion of all of Cuvier's principles, we cannot but regard any work which wholly sets them aside as very deficient in comprehensiveness; it must necessarily substitute a multitude of details for the very general anatomical statements by which four out of the five great branches of the animal kingdom are usually defined.

THE SHEFFIELD SCIENTIFIC SCHOOL.*—Prof. Verrill reports that the want of funds in the Zoölogical department has prevented the usual increase of specimens, but that the time has been turned to good account in cataloguing and classifying the general collection, and writing monographs of separate groups. Mr. S. I. Smith has monographed a part of the Decapods, and Prof. Verrill the Polyps and Corals of the west coast of America, and described numerous new forms.

The Geological department, under the direction of Prof. O. C. Marsh, has received several very valuable additions. Among these the most remarkable is a slab with twenty-one footprints of the *Otozoum* upon it, each of which is about fifteen inches in length. The slab is of a correspondingly gigantic size, measuring twenty by thirty feet.

We have not space to review other departments, but regret to notice that all of them seem to be laboring under pecuniary difficulties.

At Yale we really have a Scientific School, one which gives young men a general knowledge of science and the arts as well as a more intimate acquaintance with some special branch.

The advantages presented by the school in its mode of organization, its corps of instructors and the objects which it seeks to attain for all its students, are of the highest order. We hope, therefore, that the pecuniary hindrances to the future progress of an institution, so important to the general interests of education in this country, may be speedily removed.

NEW ECHINODERMS AND CORALS.†—In this paper Prof. Verrill describes seven new species of Echinoids, five of Asterioids, six of Ophiuroids, and six new species of coral, with one new genus among the Eupsammidæ.

* Fourth Annual Report of the Sheffield Scientific School of Yale College, pamph., 8vo, 76 pp. New Haven, 1869.

† On New and Imperfectly Known Echinoderms and Corals. By A. E. Verrill. *Ext. Proc. Bost. Soc. Nat. Hist.*, Vol. xli, pp. 382-396.

THE RULES OF ZOÖLOGICAL NOMENCLATURE.*—In republishing these rules accompanied by many valuable notes and comments, Prof. Verrill has done good service to zoölogy in this country. A copy of these rules and those of the British Association, reviewed by Prof. Gray in a previous number of Silliman's Journal, should be in the hands of every zoölogist.

NATURAL HISTORY MISCELLANY.

BOTANY.

ARTIFICIAL PREPARATION OF SUBSTANCES FOUND IN PLANTS AND ANIMALS.—Dr. Debus, the President of the Chemical Section of the British Association, states: "It has already become possible to prepare in the laboratory bodies of a very complex character, and which a few years ago were only found in the bodies of animals or plants. Alizarine, the beautiful compound of the madder-root, has been obtained by artificial means in the course of the year by Messrs. Liebermann and Græbe. Results of such a nature render it highly probable that, at no distant period, it will be in our power to prepare, artificially, nearly all, if not all, the substances found in plants and animals. Here I must not be misunderstood. Organic structures, such as muscular fibre or the leaves of a tree, the science of chemistry is incapable of producing, but molecules, like those found in a leaf, or in the stem of a tree, will no doubt one day be manufactured from their elements.—*Scientific Opinion*.

MAPLE-SEED, THREE WINGED.—I know not if it be common, and, therefore, ask for information, but on a tree of the *Acer saccharinum*, or sugar maple, in the Central Park in this city (New York) I found, a few days since, a three-winged seed. The description of the genus says, "ovary 2-celled. From the back of each ovary grows a wing, converting the fruit into two 1-seeded, at length separable, closed samaras or keys." (Gray.) I only found this one, though the trees were covered with seed, and I searched pretty carefully for more.—A. M. E.

ZOÖLOGY.

KINSHIP OF ASCIDIANS AND VERTEBRATES.—The number of Max Schultze's Archiv (v. 4), just published, contains a letter to the editor from Prof. Kupffer of Kiel, in which that distinguished embryologist asserts that he has been studying the early history of a species of *Phallusia*, and that his results in large measure agree with those of Kowal-

* From the American Journal of Science and Arts, November, 1869, at Naturalists' Agency 27 cents.